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Spaceport News

America's gateway to the universe. Leading the world in preparing and launching missions to Earth and beyond.

John F. Kennedy Space Center

November – December Launch Schedule, KSC & Cape

November

STS-87
Columbia
Nov. 19, 2:46 p.m. EST (See Page 3 for mission preview)

Columbia is hoisted in the Vehicle Assembly Building for mating with the external tank/solid rocket booster assembly.

Atlantis: Departure Nov. 11 to Palmdale for Orbiter Maintenance Down Period (OMDP).
Discovery: Back in OPF Bay 2 following temporary storage in the Vehicle Assembly Buidling.

December

Globalstar (commercial)
Delta II
Launch Complex 17A, Cape Canaveral Air Station
Dec. 4, 6:21 a.m. EST

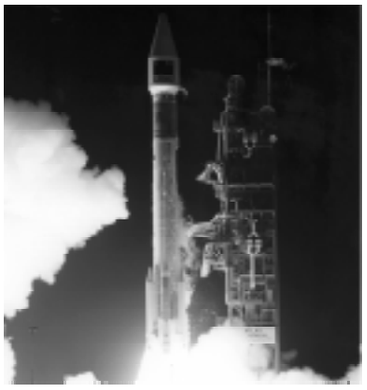
Galaxy 8 (commercial)
Atlas AC-149
Launch Complex 36, CCAS
Dec. 8, 6:21 a.m. EST

Lunar Prospector Update

Athena II

Launch date change: Launch has moved from Nov. 23 to no earlier than Jan. 5. The change is needed to allow adequate time to complete testing, review and preparation of the Lockheed Martin Athena II launch vehicle, formerly known as the LMLV-2.

Kennedy takes lead for ELV launch services



MANAGEMENT of the Atlas launch vehicle will transition to KSC from Lewis Research Center after the June 1998 launch of the first Earth Observing System (EOS) satellite from the West Coast.

NASA has assigned the Kennedy Space Center lead center responsibility for the agency's acquisition and management of expendable launch vehicle (ELV) launch services.

This assignment will eliminate redundancy in the procurement, management, fiscal and administrative functions of expendable launch vehicles. It also will enable concentration of launch operations expertise at Kennedy which is NASA's

(See ELV, Page 2)

MANAGEMENT of the Delta expendable launch vehicle will transition to KSC from Goddard Space Flight Center in Fiscal Year 1999.

Message from the Center Director: KSC Cassini team rates highest marks

Bridges

Congratulations are in order for the men and women of the Kennedy Space Center, 45th Space Wing, Jet Propulsion Laboratory, Lewis Research Center, contractors and universities whose dedicated effort made the highly publicized Cassini launch on Oct. 15 an historic success.

Cassini is the largest U.S. planetary spacecraft ever deployed, and people throughout the world are excited by the new knowledge it will reveal about our solar system's amazing planet Saturn and its many moons and rings.

Demonstrating anew to the public our commitment to safety and educating the taxpaying customer about the benefits of this complex scientific mission became the highest priorities for all of us as we prepared for the successful launch. We achieved both of these objectives.

From an education perspective, virtually every major newspaper in the state of Florida published a pro-mission editorial which clearly stated the merits outweighed the very minor risk involved.

These articles also highlighted the safety features designed into the spacecraft and the extensive cooperation between the many state and federal agencies to insure public safety even in the case of a contingency.

My thanks and high praise to the entire Cassini team. You showed them that you have the right stuff.

– Roy D. Bridges, Jr.
Director

Final KSC Open House Update

Don't forget!!

The KSC Open House is this Saturday, from 9 a.m. to 3 p.m. (*Note: Gates also open at 9 a.m., not 8 a.m as printed in the Oct. 24 issue.)*

Last-minute changes include the closing of Orbiter Processing Facility 3 and the addition of a Shuttle Carrier Aircraft at the Shuttle Landing Facility.

Astronaut candidates James Kelley and Frank Caldeiro will speak in the Training Auditorium at noon and 1 p.m., respectively. Also speaking will be Space Shuttle Program Manager Donald McMonagle (10 a.m.) and KSC Deputy Director for Launch and Payload Processing Loren Shriver (11 a.m.)

Also, the Open House brochure/map distributed this week was printed without a legend. Stars on the map indicate parking areas for open facilities, while circles indicate refreshment and souvenir trailers.

Aluminum can recycling begins Nov. 7 at KSC

On Nov. 7, KSC begins an effort to recycle aluminum soda cans. At 100 sites in major facilities around KSC, bins will be conveniently located and marked with a KSC Aluminum Can Recycle Program logo. Designated buildings for this initial phase of the effort include:

KSC Industrial Area — Headquarters, Operations and Checkout Building, Space Station Processing Facility and the Central Instrumentation Facility;

Launch Complex 39 Area — Operations Support Building, Central Supply and the Logistics Building.

The cans will be gathered and sold by ARC Brevard Inc. (Association of Retarded Citizens), with which NASA KSC has formed a Space Act Agreement. ARC will return part of the proceeds to NASA.

If all goes well, an additional 300 sites will be added in the second phase of the effort, covering the rest of KSC and extending off-site to outlying areas in Titusville and Cape Canaveral.

KSC has had a highly paper recycling effort for many years and is environmentally proactive in many other ways as well. "Adding aluminum cans further completes the picture of the space center as a good and responsible environmental citizen," said Dr. Rebecca Young, chief of the KSC Environmental Operations Office, Installation Operations Directorate.

Nov. 15 is *Florida Recycles Day*

The state of Florida hopes to build on a strong foundation of recycling success with the first *Florida Recycles Day* Nov. 15.

Florida already has a statewide recycling rate of 40 percent. The sunshine state's participation in this inaugural event is part of a national effort called *America Recycles Day*.

At least 200 special events will take place around the state to help raise consumer awareness of all aspects of recycling, from collection to processing to completing the loop through the purchase of products and packaging made from recycled materials. The theme for the special day is *Keep Recycling Working: Buy Recycled*.

In Brevard, the following events are planned. At most locations, unless otherwise noted, there will be a staffed display featuring a contest to guess how many cans are in a cube of crushed aluminum cans; an interactive game board which challenges people to learn what goes in the recycling bin; and miscellaneous publications. Pledge cards will also be distributed: Floridians 18 years and older who pledge to recycle more will become eligible to win the American Green House (a $5,000 playground), along with other prizes in a random drawing:

Nov. 3, 10 a.m. – 1 p.m., Cocoa Beach Library;

Nov. 4, 8 a.m. – 1 p.m. Brevard County Government Center, Bldg C, Viera;

Nov. 4, 9 a.m.Brevard County Commission Meeting, proclamation designating November as *Brevard Recycles Month;*

Nov. 5, 9 a.m. – 12 p.m., Cape Canaveral Library, Cape Canaveral;

Nov. 6, 9 a.m.– 2p.m., Melbourne Library, , Melbourne. Featuring R.C., the Recycle Cat, with storytimes for children 3-7 years old at 10 a.m., 11 a.m., and 2 p.m.

Nov. 7, 10 a.m. – 3 p.m., Central Brevard Library;

Nov. 10, 9 a.m. – 2 p.m., Merritt Island Post Office, Merritt Island;

Nov. 13, 9 a.m. – 3 p.m., North Brevard Public Library, Titusville;

Nov. 15, 8 a.m. – 2p.m., Home Depot, Merritt Island;

Nov. 15, 9 a.m. – 1 p.m., Home Depot, West Melbourne.

For information, call Eric Dirschka, 867-2963, e-mail Eric.Dirschka-1@ksc.nasa.gov

MANAGEMENT of the Pegasus launch vehicle will transition to KSC from Goddard in Fiscal Year 1999. Pegasus is shown here undergoing flight testing from a B-52 aircraft at KSC in 1993.

ELV ...

(Continued from Page 1)

operational launch center.

Kennedy will be fully functional in this new role by Fiscal Year 1999. The Kennedy Expendable Vehicles Directorate expects to draw expertise, on a voluntary basis, from the Goddard Space Flight Center in Greenbelt, Md., and the Lewis Research Center in Cleveland, Ohio.

To facilitate a smooth transition, Goddard and Lewis will maintain present responsibilities for manifested near-term missions.

Atlas manage-ment will transition to Kennedy from Lewis after the next Atlas mission which is currently planned to occur in June, 1998 from Vandenberg Air Force Base.

Delta and Pegasus management will transition from Goddard to Kennedy by FY 1999.

Certain mission integration responsibilities for Goddard-managed spacecraft are expected to remain at Goddard.

Kennedy will also issue and award the launch services contract(s) for the follow-on small expendable launch vehicle contract with support from Goddard and the Marshall Space Flight Center, Huntsville, Ala.

The KSC assignment complements and does not alter NASA's assignment of Marshall as lead for vehicle engineering and insight for development vehicles which lack a flight history.

STS-87 wraps up 1997 Shuttle launch schedule

The STS-87 mission aboard the Shuttle Columbia will feature the fourth flight of the U.S. Microgravity Payload (USMP-04) as well as deployment and retrieval of the Spartan-201 satellite.

Also scheduled to occur during the final Shuttle flight of 1997 is an extravehicular activity (EVA) spacewalk.

The 88th Shuttle launch and 24th flight of Columbia (OV-102) will begin with an afternoon liftoff from Launch Pad 39B at 2:46 p.m. EST and conclude with an early morning touchdown at KSC's Shuttle Landing Facility at 7:19 a.m., Dec. 5. The launch date was formally set at the Flight Readiness Review Nov. 3.

In place on Columbia is a new fuel cell monitoring system following an expedited design and KSC implementation process. Prior to the shortened STS-83 flight, NASA was studying ways to improve vehicle health monitoring with a focus on fuel cells. The desire for more refined fuel cell data before and after launch led to the installation of off-the-shelf hardware and configuration changes in the crew module and midbody.

STS-87 has a six-member crew. Two-time space flyer Kevin Kregel is the commander while Pilot Steven Lindsey is making his first spaceflight.

Mission specialists for STS-87 are Winston Scott, Kalpana Chawla, Ph.D., and Takao Doi, Ph.D. Scott served as a mission specialist on STS-72, during which he conducted two spacewalks. Scott will again perform a spacewalk on STS-87, along with Dr. Doi, who will become the first Japanese astronaut to conduct a spacewalk from a Space Shuttle.

First-time spaceflyer Dr. Chawla reported for training as an astronaut at Johnson Space Center in 1995. Assigned as a payload specialist on the mission is Leonid Kadenyuk of the National Space Agency of Ukraine, who also will be embarking on his first spaceflight.

The fourth United States Microgravity Payload (USMP-4) is one of a series of missions designed to conduct scientific research aboard the Shuttle in the unique microgravity environment for extended periods of time.

The USMP-4 payload consists of six major experiments mounted on two support structures bridging Columbia's payload bay and focusing on materials science and fundamental physics.

Another highlight of the STS-87 mission will be the deployment and retrieval of Spartan-201, a small satellite involved in research to study the interaction between the Sun and its wind of charged particles. Observations made from Spartan-201 may have important practical implications for studies of how the variations in radiation and particle outputs of the Sun affect terrestrial magnetism, climate and weather.

Other payload bay experiments include the Shuttle Ozone Limb Sounding Experiment (SOLSE) to determine the altitude distribution of ozone in an attempt to better understand its behavior. The Loop Heat Pipe (LHP) test will advance thermal energy management technology and validating technology readiness for upcoming commercial spacecraft applications, and the Sodium Sulfur Battery Experiment (NaSBE) will characterize the performance of four 40-amp-hour sodium-sulfur battery cells.

STS-87 also will provide a platform for Getaway Special (GAS) 744 from Sierra College in Rocklin, Calif. The object of this experiment is to take ozone measurements of the Earth's upper atmosphere. The Turbulent Gas Jet Diffusion Flames (TGDF) payload is another payload using the GAS carrier. Its purpose is to gain an understanding of the characteristics of transitional and turbulent gas jet diffusion flames.

Kadenyuk will oversee the Collaborative Ukraine Experiment (CUE) experiments, a collection of 10 plant space biology experiments that will fly in Columbia's middeck. CUE also features an educational component that involves evaluating the effects of microgravity on the pollinating Brassica rapa seedlings. As of press time, a minimum of 625,000 American students and teachers and 20,500 Ukrainian students and teachers will participate in the same experiment on the ground and have several live opportunities to discuss the experiment with Kadenyuk in space.

The Microgravity Glove Box (MGBX) facility was designed for conducting experiments requiring crew participation and which may contain substances that are could be hazardous or involve operations impractical in the cabin environment.

The MGBX was developed to be used in the Shuttle Middeck, the Mir Space Station, and International Space Station. It has flown during STS-75 (USMP-3) and several Mir missions.

BACK in service: Columbia's rollout to Pad 39B marks the resumption of the facility to operational service after about 10 months of modifications and overhaul. Work included: Replacement of cabling extending through the entire Fixed Service Structure, allowing electronic control and connectivity between the firing rooms, pad and Shuttle; modernization of the Apollo-era elevator system; and replacement of the air-conditioning chillers that provide cool, dry air to the launch vehicle prior to liftoff. Payload installation was set to occur Nov. 1. This photo was taken from the gaseous oxygen vent arm.

KSC Director Roy Bridges Jr. welcomes STS-87 crew members Takoi Doi (far right), a mission specialist representing the Japanese space agency, NASDA; Kevin Kregel (second from left), STS-87 commander; and Leonid Kadenyuk, a citizen of the Ukraine and a representative of the National Space Agency of the Ukraine, assigned as a payload specialist on STS-87. Five of the six STS-87 crew members arrived at KSC's Shuttle Landing Facility Nov. 3 to participate in the Terminal Countdown Demonstration Test (TCDT).

KSC Happenings

DIE HARD SPACE FAN? Bruce Willis, star of such blockbuster films as *Die Hard*, was at KSC recently for filming of the new movie *Armageddon*. He's shown here in the Operations and Checkout Building completing a scene featuring the Armadillo, a 21,500-pound, 12-wheel vehicle that may not be able to top the crawler-transporter in terms of size but can certainly beat its speed: 40 miles per hour for the Armadillo versus 2 miles per hour tops for the crawler. *Armageddon* is due for release next summer.

ASTRONAUT Heidi Piper learns more about services available to those with disabilities during National Disability Employment Awareness Month. Displays such as this one were organized by the Disability Awareness and Action Working Group (DAAWG) as part of an Assistive/Accommodative Fair Oct. 21-22.

ASTRONAUT Mark Polansky (center) chats with KSC workers during the Senior Secretaries Council's fall bash at KARS II Oct. 22. NASA retiree Gene McDilda returns to show off his culinary skills at the event, which was attended by more than 200 secretaries and their bosses.KSC Equal Opportunity Employment Director Jay Diggs enjoys the barbeque feast (seated, right), with members of his staff as one of the event organizers, Donna Cox (standing, left) of the Business Innovation Group, looks on.

SHUTTLE Processing Director Bob Sieck tries his hand at extinguishing a fire during Fire Prevention Week Oct. 5 - 11. Watching are Center Director Roy Bridges (in baseball cap) EG&G Florida General Manager Dick Jolley (to right of Bridges) and Sparky the fire dog. Other activities included display booths, distribution of fire safety materials, fire safety talks at various community locations and demonstrations like the one shown here.

HONORED IN NOVEMBER — November employees of the month are (from left, sitting): Carol Valdes, Administration Office; Priscilla Moore, Logistics Operations and Yvonne Parker, Checkout and Launch Control System; standing, from left: Steven Brisbin, Biomedical Operations; Bhupendra Deliwala, Safety and Mission Assurance; Patrick Smith, Chief Financial Officer's Office; Steven Parker, Procurement Office, and Bob Page, Launch Integration Office.

ASTRONAUT Pam Melroy learns more about SCAPE (Self-Contained Atmospheric Protective Ensemble) suit maintenance from EG&G Florida Manager Ken Madyda (left) and SCAPE suit technician Kelly Bonzar, also of EG&G, in the Hangar S South Annex on Cape Canaveral Air Station. Melroy was one of several astronauts and KSC managers who visited with employees during NASA Safety Awareness Day Oct. 15.

Two KSC workers earn CD quality award

Joseph "Greg" Glochick of NASA and Kenneth Clontz of EG&G Florida received the Center Director's Quality Dollar Award in recognizition of their attention to quality and safety.

Glochick, who works in Process Engineering, helped avert use of an incompatible cleaning agent on flight hardware. He noticed that technicians were using a Freon 141B cleaning agent known as SafeZone, different than the Freon 113 which had been used in the past.

Glochick questioned whether the new cleaning agent had been properly certified as a replacement, and through research learned that SafeZone was not compatible with the liquid oxygen environment to which the hardware being cleaned would be exposed. An analysis of the specific applications for which it had been used on an upcoming Shuttle flight was performed, and steps taken to insure the SafeZone would not be used incompatibly again.

Clontz demonstrated equal vigilence during a trouble call at an electrical substation. He questioned entering an area where energized circuits were located. Even though there was a partial barrier around the energized circuits, Clontz realized the possibility of contact did exist and immediatetly brought the issue to the attention of his supervisor.

Meetings were held to evaluate his concerns and update procedures as needed to make sure such operations were being conducted as safely as possible.

Center Director Roy Bridges Jr. established the Quality Dollar Award earlier this year to recognize significant contributions to continual process improvement, demonstrated model behavior, or innovative approaches to ensuring customer satisfaction.

Center Director Bridges (left) presents Joseph Glochick (right) with a commemorative plaque as Safety and Mission Assurance Director Tom Breakfield (center) looks on.

GOLD Coin awardee Kenneth Clontz (left) shares a light moment and some cake with the center director as EG&G Florida General Manager Dick Jolley looks on in the background..

KSC extends current base operations contract

NASA procurement officials plan to exercise an option to extend the performance period of the KSC Base Operations Contract (BOC). The action is effective Nov. 1, 1997 through Sept. 30, 1998 with an estimated value of $147 million.

The option's original performance period was for two years through Oct. 31, 1999, but, in order to accommodate the anticipated award of the Joint Base Operations Support Contract (JBOSC) slated for award by Oct. 1, 1998, it will be shortened to eleven months.

The JBOSC is a joint procurement effort between NASA and the Air Force 45th Space Wing to provide unified base support services for KSC, Cape Canaveral Air Station, and Patrick Air Force Base.

EG & G Florida, Inc. of Cape Canaveral, Fla., has been KSC's base operations contractor since 1983, providing management, operation, maintenance and engineering for KSC utilities, facilities, health, fire, security services and some technical operations. Their current contract was effective Nov. 1, 1993 and has a base period of performance through Oct. 31, 1997. The exercising of this option is within the provisions of the existing contract.

Marshall to host U.S.-Russian space science symposium Nov. 10-14

Marshall Space Flight Center is hosting an international symposium showcasing the results of Russian space research Nov. 10 – 14 at the Marriott Hotel in Huntsville, Ala.

The symposium is called *An Interchange with the Science and Technology Advisory Council,* and will feature about 50 Russian researchers presenting their findings and conclusions from Phase I International Space Station program research. There is no registration fee, and any academic, industry or government research/manager involved with space research may attend. The first half of the four-day event will review objectives and findings. The second half will focus on what can be accomplished in the future.

More information is posted on the following Web site: **http:www.stacresearch.org** or by calling Kathryn Havens, NASA Headquarters, tel. 202 358-4435.

Put stress in its place and relax

A public health survey estimates that 70 to 80 percent of Americans who visit their doctors are suffering from a stress-related disorder.

Stress not only causes mental and emotional disorders, but can precipitate serious physical illness.

Everyone reacts differently to stress. Learn more about it and how to deal with it. Information packets are available at all three medical clinics covering such topics as: How to recognize and become more aware of your own reaction to stress; the underlying and often unrecognized reasons why we become stressed; how to choose the right techniques to deal with and relieve stress and tension.

Shuttle landing simulations to improve with smart software

Even after each pilot astronaut makes 500 practice landings with a training aircraft that simulates the Space Shuttle orbiter, landing the actual Shuttle for the first time is a challenging task.

To assist future Shuttle pilots, NASA will install new, intelligent software in the training aircraft to make its approach and landing 'feel' even more like a Shuttle landing. The new software to be installed in the Gulfstream II Shuttle Training Aircraft refines the 'rules' that on-board computers use to simulate the orbiter's descent from 35,000 feet to landing.

The new software is closer to human thinking than previous software. Ground tests show that the trainer aircraft will handle about 20 percent better than before, equalling a 69 percent error reduction.

Precourt gets third trip to Mir

USAF Col. Charles Precourt will comand the final Shuttle flight to the Russian Space Station Mir, marking his third trip to the station.

STS-91 is set for a May 1998 launch on the Shuttle Discovery. Precourt was pilot on STS-71 in 1995 andcommander on the sixth docking, STS-84.

Completing the STS-91 crew are Pilot Dominic Gorie and Mission Specialists Wendy Lawrence (who also has flown to Mir previously), Franklin Chang-Diaz and Janet Kavandi.

Andrew Thomas will return with the crew, bringing to an end a continuous U.S. presence on the station.

Marshall Director Littles to retire

Marshall Space Flight Center Director Dr. Wayne Littles has announced plans to retire Jan. 3, 1998.

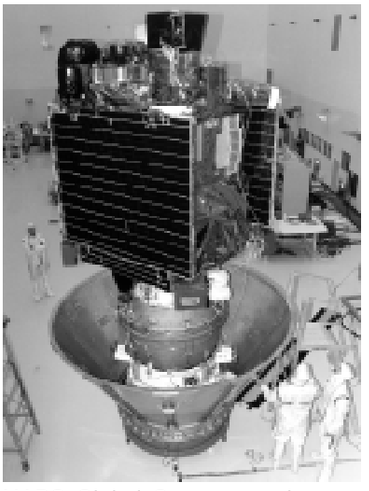
Littles was named the eighth director of Marshall in February 1996. He joined NASA at Marshall in 1967.

Mars Global Surveyor resumes aerobraking

Aerobraking to bring the Mars Global Surveyor farther into the Martian atmosphere was scheduled to resume Nov. 7 after a two-week hiatus.

Aerobraking was halted because of unexpected movement of one of the spacecraft's solar panels, which has shown as the spacecraft traveled through the highly variable and dense Martian atmosphere.

The plan now is to aerobrake at a more gradual pace than previously, which would extend the aerobraking phase by several months and will change the final orbit for performing mapping operations.



MARS Global Surveyor undergoes preflight preparations at KSC prior to launch in November 1996. The spacecraft has already revealed that there are strong remnant magnetic fields near the surface rather than a global magnetic field like Earth's. Note the solar panels stowed for flight. One did not fully deploy and latch after launch and has shown unexpected movement in the Martian atmosphere.

New tour stop takes shape

NEW tour stop for visitors taking the KSC Visitor Complex bus tour nears completion. The viewing site is located across the street from the midpoint park site for the crawler-transporter, affording visitors an excellent view of both Shuttle launch pads. This stop and an International Space Station stop in the KSC Industrial Area are scheduled to be open near the end of December this year.

Spaceport Florida has plans for LC 20

Spaceport Florida Authority officials recently briefed industry leaders in Washington, D.C., on plans to upgrade Launch Complex 20 on Cape Canaveral Air Station. The authority wants to establish a multi-user, quick-turnaround launch capability at the site, which has been used for suborbital launches.

$250,000 space prize to be announced

A $250,000 *Cheap Access to Space* competition was to be announced at the Space Frontier Conference VI in Los Angeles Nov. 7. The conference theme is *Space: Open for Business*. A central topic will be the transformation of space from a government program to a frontier driven by commercial development. Conference sponsors are the Space Frontier Foundation, with funding for the prize provided by the International Non-Governmental Development of Space. The prize will be awarded to the first private team to launch a two-kilogram (4.4-pound) payload to an altitude of 200 kilometers (124 miles) or higher. More information is available on the conference Web site: **http://www.space-frontier.org**

John F. Kennedy Space Center

Spaceport News

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